

Rearing the *Convolvulus* Hawkmoth (*Agrius convolvuli* L.), Autumn-Winter 1976-77

By ROBERT A. CRAMP*

On 16th October, 1976, a friend who lives in Reigate, Surrey rang to say that his daughter had found "a large moth—fully four inches across" in the garden. The specimen turned out to be a female *A. convolvuli* (Linn.) which was in fine condition.

An attempt at obtaining ova was made, and for the purpose a cylinder cage as marketed by Worldwide Butterflies was used. *Calystegia sepium* (Linn.), the common bindweed, was used as a foodplant as *Convolvulus arvensis* (Linn.), the lesser bindweed, was well past its best. Flowers of the tobacco plant, *Nicotiana*, were freshly picked and included in the cage.

At dusk the moth became active. It was observed to hover in such a controlled manner that for several seconds, although in flight, it did not touch the sides of the cage. At no time, however, was it observed to feed. On the morning of the 17th, six ova were noted on the foodplant on the floor of the cage. Spurred on by this piece of good fortune, it was decided to leave the moth for another night to see if it would lay more eggs. At dusk that evening the same flight pattern was noted lasting about half an hour. After this the moth began ovipositing. On the morning of the 18th a further 132 ova were counted. Predicting that the appetites of this number of full-grown larvae would be gargantuan, there seemed to be little point in keeping the moth for further eggs, and, as it was still in quite fine condition it was sacrificed. When set the specimen had a wingspan of 115 m.m.s.

Many of the ova were given away to entomological friends. 40 were retained and these basically divided into two groups. 27 were kept for forcing through as quickly as possible, and 13 were placed in the refrigerator at 4-5°C. in the hope that they might over-winter and be reared at leisure the following season. In the event these ova, while still appearing healthy in mid-January, had completely collapsed by mid-March.

As the ova matured, the developing larvae showed up as white in contrast to the turquoise-green coloration of the egg. Just prior to hatching, the ova were a dull whitish colour all over with one black dot. The ova showed signs of partial collapse at this stage.

On the morning of 28th October, some of the larvae had hatched and by that evening 17 young larvae were counted. They were 6-7 m.m.s long. When first hatched they were very pale green with a slightly darker green head. After a few hours (having eaten) they turned a slightly darker green. The horn, which was black, was about 2 m.m.s long. The larvae were divided into three lots and offered *C. sepium*. This was

* "Lea Hurst", 11 Wray Park Road, Reigate, Surrey RH2 0DG.

still fairly plentiful locally, although the quality was showing signs of "going off" a bit. For this reason it was decided that the larvae should go through to pupation as quickly as possible. To this end they were kept in the boiler room where the temperature ranged from 27 to 32°C.

By evening of 29th October, two more larvae had hatched and the length of the older larvae was c 9 m.m.s. During the first instar the larvae tended to rest along a midrib or vein on the underside of a leaf. When feeding they would eat a hole in the middle of a leaf.

By the evening of 30th October, several larvae had completed the first ecdysis and several more were obviously preparing for it. 20 larvae were counted at this stage. The more mature larvae were now 11-12 m.m.s—the black horn c. 3 m.m.s.

On 1st November, seven larvae were given away reducing the total to 13. By that evening seven had completed their second skin change. The appearance of the larvae at this stage was slightly changed. The overall length of the larvae when at rest was about 17 m.m.s, and only the apical third of the horn was black. The spiracles were visible now and these were encircled by red. The second instar larvae still tended to feed by biting a hole in the middle of the leaf, but the third instar larvae would take all their meals from the edge of the leaf.

By the evening of 2nd November, 12 of the 13 larvae had shed their skins for the second time. The more mature larvae were now 23-24 m.m.s and feeding voraciously. At this stage the oblique lines were becoming obvious as darker edged white lines passing from the mid-dorsal line through the spiracular mark and terminating at the anterior border of that particular segment.

By the evening of 3rd November, six of the larvae were preparing for their third skin change. The largest larva was now 26 m.m.s and the smallest, which had only just completed its second skin change, was 17 m.m.s. It soon became apparent that the largest larvae was very much darker than the remaining larvae, though these showed considerable variation amongst themselves with regard to the amount of green and black coloration.

By noon on 6th November, the dark larva had completed its fourth skin change. At rest it was 48 m.m.s. At first, after the skin change, it was purplish brown, but a few hours later the ground colour became jet black. The mid-dorsal line was interrupted and orange. On either side of this there was a more complete orange line. The oblique lines were now rather indistinct and white. The spiracles were ringed with red, and the lateral line beneath these pure white. The orange head was marked with six nearly vertical black stripes. The horn was sepia with a black tip and 7 m.m.s long. On the morning of 7th November, when extended it measured 61 m.m.s and was feeding voraciously. One other larva had just shed its skin,

and all the other larvae, except for one, were preparing for the fourth skin change.

By 10th November, all but one had reach their final instar and were of the dark form. The 13th larva was well behind in its development and so was discarded. The remaining larvae continued to feed up well and by 13th November the largest measured 105 m.m.s + when crawling. By 14th November, one of the larvae had stopped feeding and was beginning to make experimental burrows. This procedure was of variable duration among the larvae, but by 17th November the last of the 12 larvae had burrowed into the peat. This had been placed to a depth of four inches at the bottom of the cylinder cage and the larvae mostly made full use of it and burrowed right to the floor. The first one to pupate did so on 21st November.¹

On 27th November, the pupae were removed and placed on the surface of fresh peat. All 12 were found to be alive and apparently healthy. The pupae were then removed to a room where the temperature ranged from 13-18°C. By the end of January, none of the pupae showed any sign of further development, although all still appeared quite healthy, and so they were placed back in the boiler room. The first moth to emerge, a male, did so at c. 19.00 on 13th February. All of the moths emerged either in the evening around this time or very early in the morning. The remaining moths, four males and five females, emerged between this date and 17th March. Wingspans ranged from 87 m.m.s to 101 m.m.s.

¹ An interesting point is that of all the larvae reared (including those shared among members of the Croydon Natural History Society), only one was of the green form.

CALLICERA AENEA FABRICIUS (DIPTERA, SYRPHIDAE) IN NORTH HAMPSHIRE. — One ♀ specimen of this handsome rare species was captured hovering over some piled up birch logs lying at the side of a woodland ride in full sunshine surrounded by a growth of bracken (*Pteridium aquilinum*) at Odiham Common, North East Hampshire, on the 11th July, 1977. Later that same week on the 15th July, 1977, I was most fortunate to see another ♀ example of this species in an open area adjacent to young coniferous woods in which several large oak and pine boles were lying on their sides in various conditions of decay just north of Benyon's Enclosure, near Mortimer West End, North Hampshire. This specimen, which was in almost perfect condition, I intentionally did not catch in order to observe some of its habits which in this specimen was to hover up and down above the oak boles, exploring the occasional crevice in them and sitting on the boles in the full sun. When disturbed it flew off at speed high into the sky, but soon returned to alight once again on the oak bole in the position it had held before being disturbed. — S. R. MILES, 25 Northanger Close, Alton, Hants.